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PCB Relay

G5V-2

Miniature Relay for Signal Circuits

- Wide switching capacity of 10 μ A to 2 A.
- High dielectric strength coil-contacts:1,000 VAC;
open contacts: 750 VAC.
- Conforms to FCC Part 68 requirements.
- Ag + Au clad bifurcated crossbar contacts and fully sealed for high contact reliability.
- New 150-mW relays with high-sensitivity.



Ordering Information

Classification	Contact form	Contact type	Contact material	Enclosure rating	Model
Standard	DPDT	Bifurcated crossbar	Ag + Au-clad	Plastic-sealed	G5V-2
High-sensitivity					G5V-2-H1

Note: When ordering, add the rated coil voltage to the model number.

Example: G5V-2 12 VDC

Rated coil voltage

Model Number Legend:

G5V - - VDC
 1 2 3

1. Contact Form
2: DPDT

2. Classification
H1: High-sensitivity

3. Rated Coil Voltage
3, 5, 6, 9, 12, 24, 48 VDC

Specifications

■ Coil Ratings Standard Models

Rated voltage	3 VDC	5 VDC	6 VDC	9 VDC	12 VDC	24 VDC	48 VDC
Rated current	166.7 mA	100 mA	83.3 mA	55.6 mA	41.7 mA	20.8 mA	12 mA
Coil resistance	18 Ω	50 Ω	72 Ω	162 Ω	288 Ω	1,152 Ω	4,000 Ω
Coil inductance (H) (ref. value)	Armature OFF	0.04	0.09	0.16	0.31	0.47	1.98
	Armature ON	0.05	0.11	0.19	0.49	0.74	2.63
Must operate voltage	75% max. of rated voltage						
Must release voltage	5% min. of rated voltage						
Max. voltage	120% of rated voltage at 65°C, 100% at 70°C						120% of rated voltage at 60°C, 100% at 65°C
Power consumption	Approx. 500 mW						Approx. 580 mW

High Sensitivity Models

Rated voltage	3 VDC	5 VDC	6 VDC	9 VDC	12 VDC	24 VDC	48 VDC
Rated current	50 mA	30 mA	25 mA	16.7 mA	12.5 mA	8.33 mA	6.25 mA
Coil resistance	60 Ω	166.7 Ω	240 Ω	540 Ω	960 Ω	2,880 Ω	7,680 Ω
Coil inductance (H) (ref. value)	Armature ON	0.18	0.46	0.70	1.67	2.90	20.1
	Armature OFF	0.57	0.71	0.97	2.33	3.99	26.7
Must operate voltage	75% max. of rated voltage						
Must release voltage	5% min. of rated voltage						
Max. voltage	180% of rated voltage at 23°C, 150% at 70°C						150% of rated voltage at 23°C, 120% at 70°C
Power consumption	Approx. 150 mW					Approx. 200 mW	Approx. 300 mW

- Note:**
1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $\pm 10\%$.
 2. Operating characteristics are measured at a coil temperature of 23°C.
 3. A 48-VDC model is available. Consult OMRON for details.

■ Contact Ratings

Item	Standard models	High sensitivity models
Load	Resistive load ($\cos\phi = 1$)	
Rated load	0.5 A at 125 VAC; 2 A at 30 VDC	0.5 A at 125 VAC; 1 A at 24 VDC
Contact material	Ag + Au-clad	
Rated carry current	2 A	
Max. switching voltage	125 VAC, 125 VDC	
Max. switching current	2 A	1 A
Max. switching capacity	62.5 VA, 60 W	62.5 VA, 24 W
Min. permissible load	0.01 mA at 10 mVDC	

Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}/\text{operation}$

■ Characteristics

Item	Standard models	High sensitivity models
Contact resistance	50 m Ω max.	100 m Ω max.
Operate time	7 ms max.	
Release time	3 ms max.	
Bounce time	Operate: approx. 0.3 ms Release: approx. 1.5 ms	
Max. operating frequency	Mechanical: 36,000 operations/hr Electrical: 1,800 operations/hr (under rated load)	
Insulation resistance	1,000 M Ω min. (at 500 VDC)	
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between coil and contacts 1,000 VAC, 50/60 Hz for 1 min between contacts of different polarity 750 VAC, 50/60 Hz for 1 min between contacts of same polarity	1,000 VAC, 50/60 Hz for 1 min between coil and contacts 1,000 VAC, 50/60 Hz for 1 min between contacts of different polarity 500 VAC, 50/60 Hz for 1 min between contacts of same polarity
Impulse withstand voltage	1,500 V 10 x 160 μ s between coil and contacts (conforms to FCC Part 68)	
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude Malfunction: 10 to 55 Hz, 1.5-mm double amplitude	
Shock resistance	Destruction: 1,000 m/s ² (approx. 100G) Malfunction: 200 m/s ² (approx. 20G)	Destruction: 1,000 m/s ² (approx. 100G) Malfunction: 100 m/s ² (approx. 10G)
Life expectancy	Mechanical: 15,000,000 operations min. (at 36,000 operations/hr) Electrical: 100,000 operations min. (at 1,800 operations/hr)	
Ambient temperature	Operating: -25°C to 65°C (with no icing) Storage: -25°C to 65°C (with no icing)	Operating: -25°C to 70°C (with no icing) Storage: -40°C to 70°C (with no icing)
Ambient humidity	Operating: 35% to 85%	
Weight	Approx. 5 g	

■ Approved Standards

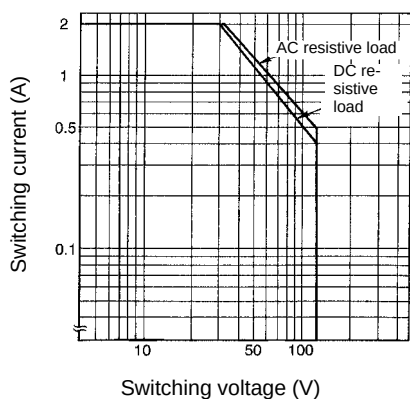
UL478, UL1950, UL508 (File No. E41515)/CSA C22.2 No.0, No.14 (File No. LR24825)

Contact form	Coil ratings	Contact ratings	
		G5V-2	G5V-2-H1
DPDT	3 to 48 VDC	0.6 A, 125 VAC (general use) 0.6 A, 110 VDC (resistive load) 2 A, 30 VDC (resistive load)	0.5 A, 125 VAC (general use) 0.2 A, 110 VDC (resistive load) 1 A, 24 VDC (resistive load)

Engineering Data

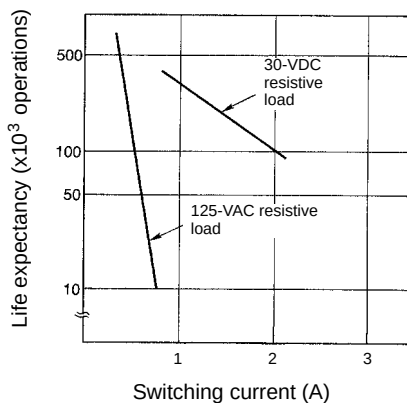
Max. Switching Capacity

G5V-2



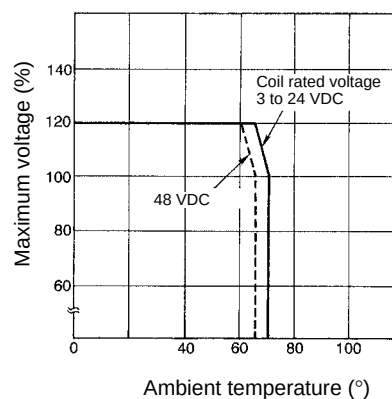
Life Expectancy

G5V-2

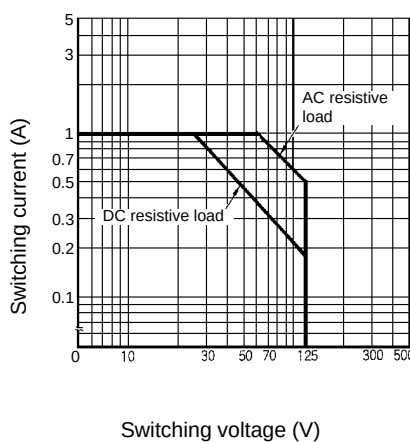


Ambient Temperature vs. Maximum Voltage

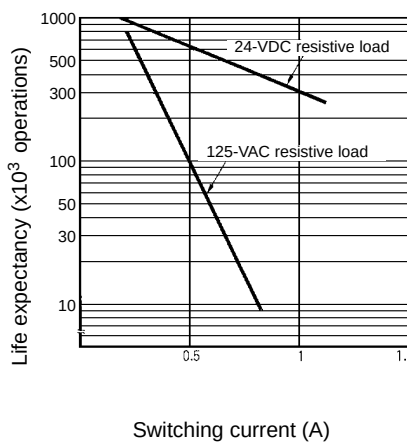
G5V-2



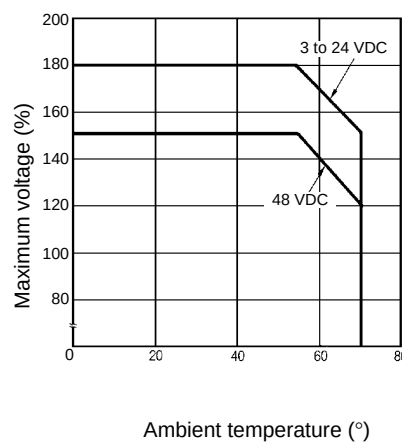
G5V-2-H1



G5V-2-H1

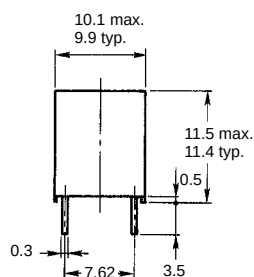
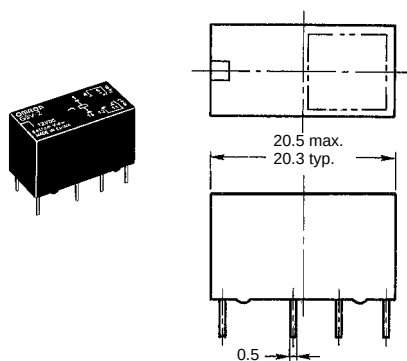


G5V-2-H1

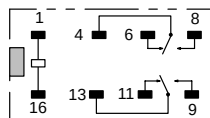


Dimensions

- Note:** 1. All units are in millimeters unless otherwise indicated.
 2. Orientation marks are indicated as follows:  

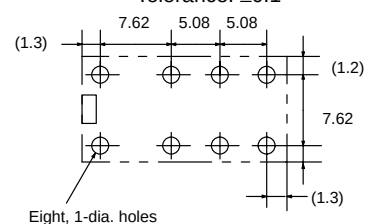


**Terminal Arrangement/
Internal Connections
(Bottom View)**



**Mounting Holes
(Bottom View)**

Tolerance: ± 0.1



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.